LAFAYETTE HAS A FINE ENGINE

Greatest Interest in This Remarkable Car Centres Under the Hood.

Because D. McCall White is famous as an engine designer both in this country and Europe interest in the new Lafayette car, exhibited in the main lobby of the Commodore Hotel and built by the Indianapolis company of which Charles W. Nash is president, naturally centres in the mechanism that is concealed under the long, tapering bonnet.

The eight cylinder engine, which reflects the influence of aircraft design, is of the high speed type, with a maximum speed of 4,000 revolutions per minute and an actual rating in excess of 90-horsepower. The bore and stroke measure 3¼x5½ inches, and the cylinders, which have detachable heads and internally machined combustion chambers, are cast in two blocks of four each.

The engine design differs from the orthodox eight cylinder type not only in power, speed and lightness but in simplicity, advanced ideas having eliminated many parts hitherto considered necessary by eight cylinder manufacturers.

The suspension of the engine is at four points, and the exhaust manifolds are cast integrally with the cylinder blocks so that a single connection can be used for carrying off the exhaust gases from the lower side of each block.

The valves are set at an angle of 9 deg. with the cylinders, which makes for higher efficiency in the combustion chamber, and the 108 deg. angle of the valves results in easier adjustment than in an engine of the usual 90 deg. angle.

In addition to the exceptional flexibility that is inherent to an eight, the engine of the Lafayette has several other outstanding qualities that are vital sources of satisfaction.

The five bearing crank shaft, for example, and the direct valve action are contributing factors to quiet operation, since the Lafayette crank shaft is much more rigid than the three bearing crank shaft that is common to most eight cylinder engines and the elimination of the rocker arms in the valve mechanism doing away with any noise resulting from valve tossing and the resultant limitations placed on engine speeds.

Durability is another salient characteristic of the Lafayette engine. All bearings are unusually large for longer life and easier adjustment, while the cam shaft has sixteen cams instead of the conventional eight, so that there is only half as much wear on each cam and with the very advantageous result of identical valve action on both sides of the engine.

Many unusual refinements are noted in the Lafayette engine, not the least of which are the exclusive use of straight rods to eliminate all offset action and the manner in which all working parts are enclosed.

In the cooling system the air circulation is thermostatically controlled by the use of vertical shutters on the radiator. When the engine is cold the shutters are closed, but as the engine gradually warms up through operation the shutters are automatically opened, consequently there is no danger of water freezing in extremely cold weather when the engine is running.

The fan and cam shafts are operated by silent adjustable chains. The fan is fitted with a unique compensating spring drive that absorbs the shocks due to changes in engine speeds.

Another distince departure from common practice that is noted in the Lafayette is the mounting of both the water and oil pump on the crank shaft. This does away with individual drives for these units and materially reduces the number of engine parts.

A notable feature of the lubricating system of the Lafayette is that the oil not only lubricates the bearings but cools them as well due to the hollow construction of the crank shaft. The engine is designed to run at minimum heat for highest thermal efficiency, with the result that the oil is kept at the lowest possible temperature. Consequently the proper oil body is retained and the life of the engine is increasd through lubrication that is maximumly efficient.

GETS BETTER AS IT GROWS OLDER

That Is a Distinct Advantage of the Willys-Knight Engine.

Millions of miles of service in peace work and war work, in America and across the seas, have determined the merits of the sleeve valve motor, the highest development of which is represented under the hood of the beautiful new Willys-Knight models which are attracting so much attention at this year's automobile show.

As distinctive and graceful as are the new body lines of the new Willys-Knight models, it is under the hood of this car that prospective buyers and show visitors will find what engineers now concede is the highest type of long life locomotion, a perpetually youthful motor that actually improves with use.

Several years ago the performance of the Knight sleeve valve motors attracted the attention of John N. Willys. He was quickly convinced of its future because of its surging power, its quietness of operation, its dependability. Mr. Willys's judgment was confirmed later when English engineers adopted the sleeve valve motor for use in its tanks during the war because of the dependability under adverse conditions in the war, and before and since in a wide variety of services the sleeve valve engine has become the international motor.

In design the Willys-Knight differs from other motors. One of its striking features is its simplicity. Noisy poppet valves are replaced by noiseless sliding sleeves. Two cylindrically shaped sleeves fitting one within the other glide quietly up and down in a film of oil.

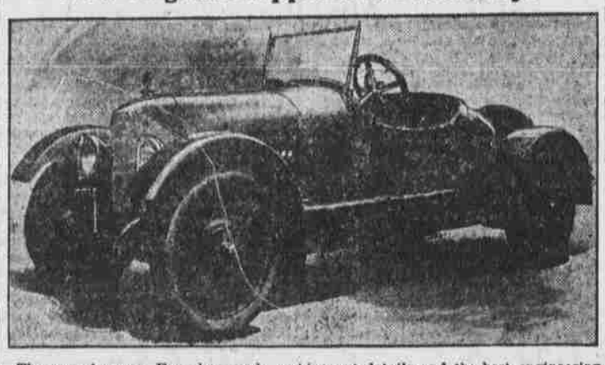
In these sleeves are openings or ports. As the sleeves slide by each other these openings are brought together at the proper moment, forming large passages for intake and exhaust action.

Percy Owen as a Race Driver.

This illustration pictures the arrival at Queenstown, Ireland, in 1903 of Percy Owen (the figure at the left) and his Winton "Pup." This har was one of the entries in the James Gordon Bennett International Cup Race. Owen's car was the lightest automobile entered. He was not the winner, being forced out by mechanical trouble, but, as the *Westminster Gazette* reported, "he provided the most exciting piece of racing of the event."

Those who know Mr. Owen to-day as president of the Liberty Motor Car Company are familiar with the qualities that made him one of the most feared competitors by the foreign racing daredevils of the day.

New Argonne Appeals to Broadway.



The new Argonne Four has made an immediate hit among those on Broadway who have seen this beautiful car, whose appearance is as striking as its sturdiness is assured. The car is almost a home product, being made just across the river in Jersey City by the Argonne Motor Car Company.

In it are combined the creative engineering thoughts of two continents and in it are coupled European skill in working out details and the best engineering methods of American manufacture. The Argonne Four comes in two models, two passenger and four passenger. It is of 128 inch wheelbase and had a Monobloc motor capable of making seventy miles an hour. Gasolene consumption approaching twenty miles an hour is claimed by the makers.

The Argonne is a car made to be driven by the owner who can afford a really fine car.

COLE LEADING VAN IN MOTOR HISTORY

Firm Has Devoted Energies for Ten Years to Producing Advanced Cars.

Ability to anticipate the trend of the future is the keynote of the success of the Cole Motor Car Company.

For ten years it has devoted its energies and resources to the production of advanced motor cars. During that time its contributions to the science of automobile manufacture have been numerous and frequent.

The original Cole four cylinder cars established standards for speed and economy far ahead of their time, many of which still live as world's records. Later in developing the Cole Six the company created a precedent by despatching the test models into the Rocky Mountains and there submitting them to previously unheard of trials.

Cole was one of the first two American manufacturers to build an eight cylinder car and to concentrate upon this one type of chassis exclusively. The first Cole eights introduced in 1915 embodied features which are just coming to be incorporated generally in the conventional eight cylinder cars of the present day.

They were the first eights to have removable cylinder heads, now recognized universally and incorporated in practically all improved V type engines.

They were the first eight cylinder cars to have counterbalanced crank shaft. The counterbalances are welded electrically to the crank shaft throws, not bolted, as is sometimes the case. It has proved to be as advantageous as the integral cam shaft and created a unit recognized for its absolute dependability. The simplicity of the valve mechanism and the water pump and the reduction of the number of parts throughout the engine mechanism formed an important contribution to the early Cole eights.

With all these remarkable advancements to its credit it was only natural then that Cole should produce the Aero Eight, a motor car that transcended all other accomplishments of the motor car and placed Cole seasons ahead of any contemporaries and in a class exclusively its own.

It is Cole's ability to create which is responsible for the now familiar slogan: "There's a touch of to-morrow in all Cole does to-day.